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Washington, D.C. 20231

Attorney Docket No. 19697-4US

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By: _____

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s)/Applicant Identifier: Charles H. Reynolds

For: METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY

Enclosed are:

[X] 4 sheet(s) of [X] formal [ ] informal drawing(s).
[ ] An assignment of the invention to _____
[X] A [X] signed [ ] unsigned Declaration & Power of Attorney
[ ] A Power of Attorney by Assignee with Certificate Under 37 CFR Section 3.73(b).
[X] A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27 [X] is enclosed [ ] was filed in the prior application and small entity status is still proper and desired.
[X] Information Disclosure Statement under 37 CFR 1.97.
[X] Please amend page 3, line 12 by replacing "pin 3" with --L 3--.

	(Col. 1)		(Col. 2)
FOR:	NO. FILED		NO. EXTRA
BASIC FEE			
TOTAL CLAIMS	13	- 20 =	*0
INDEP. CLAIMS	2	- 3 =	*0
[ ] MULTIPLE DEPENDENT CLAIM PRESENTED			

SMALL ENTITY			OTHER THAN SMALL ENTITY	
RATE	FEE	OR	RATE	FEE
	$380.00	OR		$760.00
x $9.00 =	$0.00	OR	x $18.00 =	
x $39.00 =	$0.00	OR	x $78.00 =	
+ $130.00 =		OR	+ $260.00 =	
TOTAL	$380.00	OR	TOTAL	

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2 extra copies of this sheet are enclosed.

Respectfully submitted,

TOWNSEND and TOWNSEND and CREW LLP

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VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b)) - INDEPENDENT INVENTOR

Applicant or Patentee: Charles H. Reynolds
Application or Patent No.:
Filed or Issued:
Title: METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office regarding the invention entitled METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY described in:

[X] the specification filed herewith;
[ ] Application No. _____, filed _____;
[ ] Patent No. _____, issued _____.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed or licensed or am under an obligation under contract or law to assign, grant, convey or license any rights in the invention is listed below:*

[ ] No such person, concern or organization.
[ ] Persons, concerns or organizations listed below.*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Name:
Address:

[ ] Individual [ ] Small Business Concern [ ] Nonprofit Organization

Name:
Address:

[ ] Individual [ ] Small Business Concern [ ] Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Inventor	Name of Inventor	Name of Inventor
Signature of Inventor Charles H. Reynolds	Signature of Inventor	Signature of Inventor
Date 5-7-99	Date	Date

SF 218133 v1

Attorney Docket No.: 19697-4

PATENT APPLICATION

METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY

Inventor(s):

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2465 Bridle Path Drive
Gilroy, CA 94020

Entity: Small

METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY

CROSS-REFERENCES TO RELATED APPLICATIONS

This application is related to the following design applications by the same inventor, each of which is incorporated herein by reference, and each of which was filed on the same day as this application:

REMOTELY SWITCHABLE POWER SUPPLY FOR NETWORK DEVICE RACKS HAVING EIGHT NETWORK PORTS AND FOUR POWER OUTLETS;

NETWORK REMOTELY SWITCHABLE POWER SUPPLY; AND

NETWORK PORT AND POWER OUTLET PLACED ON A SWITCHABLE POWER SUPPLY

BACKGROUND OF THE INVENTION

This invention relates to electronic circuits. More particularly, the invention relates to a method and apparatus for a power supply and housing that is particularly appropriate for use in rack-style network equipment.

Early in the development of modern networking equipment such as routers, it was realized that at times a particular piece of network equipment might hang or "crash." In such instances, a human operator often had to intervene by traveling to the location of the equipment and rebooting or power cycling the equipment in order to get that particular piece of equipment working.

Responding to these needs, the inventor of the present invention, as early as 1994, constructed a "power cycle box." The original design contained two network ports and a control relay connected to at least one power outlet. From the exterior, the supply arranged two network socket connections and a power outlet socket on the same surface of the power supply (the front or the top), and in some instances included an indicator light. A diagram of such a design is shown in Fig. 1. In this design, a particular network signal could be sent through the two network ports which would cause the control relay to disconnect the power supply from the power outlet, thereby, shutting off power to the controlled network device. Another signal would reestablish power, thereby, causing the controlled device to reboot. An alternative design arranged more

than one controlled power supply socket with corresponding network sockets on a surface of the power supply.

While this design proved both useful and successful in the marketplace, for many years a need has been felt for a more compact and streamlined design that could be fitted efficiently into a standard network rack. However, it is difficult to construct such a design because of the restrictions on placement of elements within the control circuit, which must be sufficiently far apart to provide clearance between the network data connections and the AC power connections to prevent electromagnetic interference. An additional desired feature was for multiple controlled power supplies.

What is needed, therefore, is a power cycle control circuitry that can fit into a small space such as a single rack unit, while allowing for independent control of multiple power outlets.

SUMMARY OF THE INVENTION

According to the invention, one or more controlled power outlets are housed in a power supply housing, the housing having the desirable characteristic that the height of the housing allows it to be mounted in a standard network device rack occupying one rack unit. To accomplish this configuration, controller power outlets are distributed on one surface of the housing, and sockets for receiving a control signal are distributed on a different surface. In various embodiments, one or more power sockets may be provided, and one or more power sockets may be controlled by each control signal socket.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram of a housing and controlled power supply according to the prior art.

Fig. 2 is a simplified block diagram showing functional elements of one specific embodiment of the present invention for one controlled circuit.

Figs. 3A and 3B are different views of a diagram of a housing according to the invention.

Figs. 4A and 4B are different views of a sketch of a housing according to a specific embodiment of the invention, showing measurements in inches for a specific embodiment.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

Fig. 2 is a simplified block diagram showing functional elements of one specific embodiment of the present invention for one controlled circuit. Shown are control sockets 100 and 102, which in one specific embodiment are standard RJ45 network sockets having pins as shown, LED 120, control relay 130. According to one embodiment of the invention, a network connection is made through sockets or receptacles 100 and 102 and in standard network data transmission, data passes through the connections without being affected by the circuits of the invention.

However, when a controlling network device such as a router wishes to cause a power cycle to the load connected to AC outlet 150, the controlling network device places a predefined signal on pin 7 and alternatively also on pin 4 or 5. The signal from pin 7 connects to pin 3 which when forced to the low state causes control relay 130 to open thereby disconnecting the power supply line from the load line and removing power from AC outlet 150. At the same time, according to one embodiment of the invention, an opposite signal is placed on pins 4 or 5 causing control relay L4 to go to a high state which also forces control relay 130 to disconnect the power supply line from the loaded AC outlet.

LED 120 is an optional indicator light that may be variously connected to indicate when outlet 150 is on or off.

In an alternative embodiment, control relay 130 is normally in the open position disconnecting the power supply line from the load line, and a specific signal on a pin of the sockets must be asserted to close the relay and thereby connect the power supply.

It will be obvious to those of skill in the art that the control signal for AC outlet 150 can also be delivered through a single control socket such as 102. However, this is a less desirable alternative embodiment because it would require a dedicated line from the controlling network device to the power supply, rather than the pass-through network connection as illustrated in Fig. 2.

According to the invention, one or more controlled power supplies can be housed in a power supply housing as shown in Figs. 3A and 3B. The housing shown in Fig. 3 has the desirable characteristic that the height (h) of the housing is such that the housing can be mounted in a standard network device rack and will occupy only one rack unit. As is known in the art, one rack unit in one well-known device standard is 1.75 inches. Fig. 3 shows an embodiment having one switchable power outlet 10 on one side

and two network sockets 12 that provide control for that outlet on the other side. These elements are drawn in solid lines. As discussed above, control of outlet 10 can alternatively be accomplished through just one socket 12.

In an alternative embodiment, additional power sockets 10a may be provided. Some or all of these additional sockets may be controlled by the same network socket 12. Alternatively, some or all of the additional power sockets may be separately controlled by additional network sockets 12a.

Figs. 4A and 4B are different views of a sketch of a housing according to a specific embodiment of the invention, showing measurements in inches for a specific embodiment.

The invention has now been explained with regard to specific embodiments. Other embodiments would be obvious to those with skill in the art, and the invention should not be limited except as provided in the attached claims.

WHAT IS CLAIMED IS:

1. A controllable power supply comprising:

a housing having at least two distinguishable surfaces;

a first control signal socket located on a first of said distinguishable surfaces;

a power supply socket located on a second of said distinguishable surfaces;

control circuitry within said housing operatively connected with said control signal socket, and said power supply socket wherein power to said power supply socket may be turned on or off in response to a signal received at said control signal socket.

2. The device according to claim 1, further comprising:

a power line for connecting to an external power source.

3. The device according to claim 1, further comprising:

a second control signal socket for passing through signals received on said first control signal socket.

4. The device according to claim 1, further comprising:

an indicator light operatively connected to said control circuitry for indicating whether power to said power supply socket is turned on or off.

5. The device according to claim 1, wherein said control circuitry comprises a control relay.

6. The device according to claim 1 wherein said first and second distinguishable surfaces are parallel to each other.

7. The device according to claim 1 wherein said housing constitutes a box comprising six surfaces.

8. The device according to claim 7 wherein said housing comprises a top surface, a bottom surface, a front surface, a rear surface, a left surface, and a right surface.

9. The device according to claim 8, wherein said control socket is located on said front surface and said power supply socket is located on said rear surface.

10. The device according to claim 8, further comprising:

a plurality of paired control sockets located on said front surface and each associated with one or more power supply sockets located on said rear surface.

11. The device according to claim 9, wherein said top surface and said bottom surface are parallel planes between 1.5 and 2.0 inches apart.

12. The device according to claim 9, wherein housing is mountable in a computer device rack and occupies only one rack unit.

13. A method for a controllable power supply wherein sockets and control circuitry may be contained within a housing having a constrained height comprising:

placing a control signal socket on one surface of said housing;

placing a power supply outlet on an opposite surface of said housing; and

placing control circuitry within said housing, said control circuitry operatively connected with said control signal socket and said power supply socket wherein power to said power supply socket may be turned on or off in response to a signal received at said control signal socket.

METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY

ABSTRACT OF THE DISCLOSURE

One or more controlled power outlets placed on a power supply housing having the desirable characteristic that the height of the housing allows it to be mounted in a standard network device rack occupying one rack unit. To accomplish this configuration, controller power outlets are distributed on one surface of the housing, and sockets for receiving a control signal are distributed on a different surface. In various embodiments, one or more power sockets may be provided, and one or more power sockets may be controlled by signals received on each control socket.

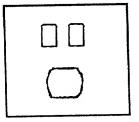


FIG. 1
(PRIOR ART)

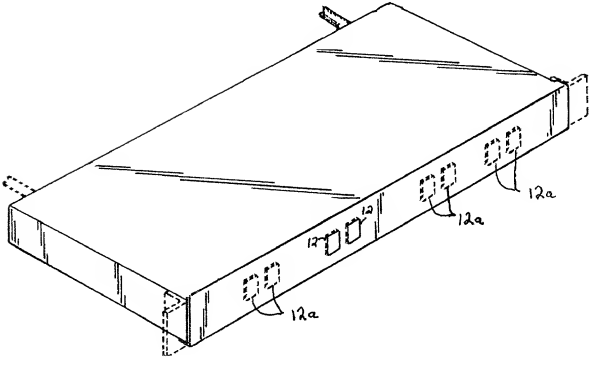


FIG. 3A

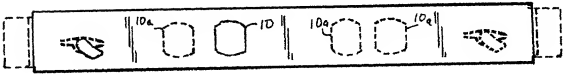
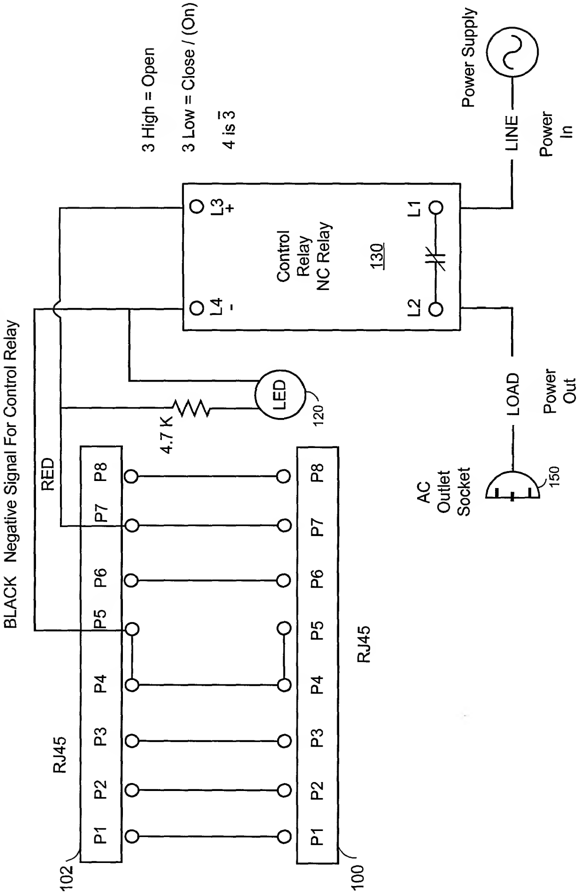


FIG. 3B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3 Low = Close / (On)
4 is $\overline{3}$
Power Supply
LINE
Power In
L3 +
L4 -
Control Relay NC Relay
130
L1
L2
LOAD
Power Out
AC Outlet Socket
150
BLACK Negative Signal For Control Relay
RED
LED
120
4.7 K
P8
P7
P6
P5
P4
P3
P2
P1
RJ45
RJ45
102
100

FIG. 2

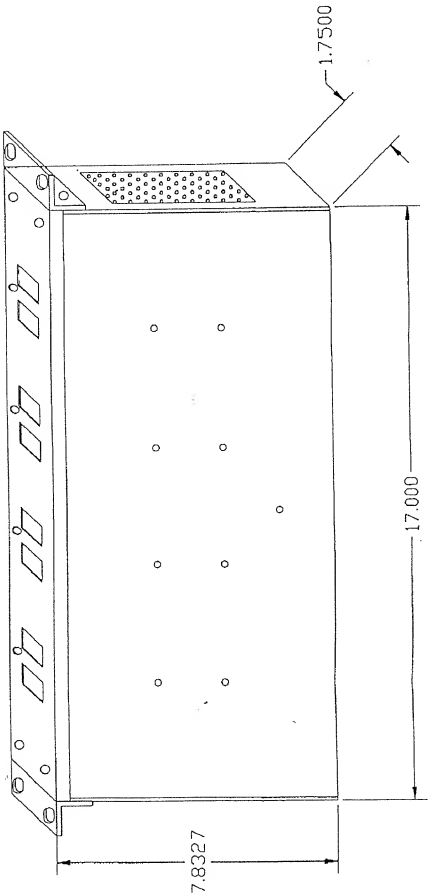

FIG. 4A

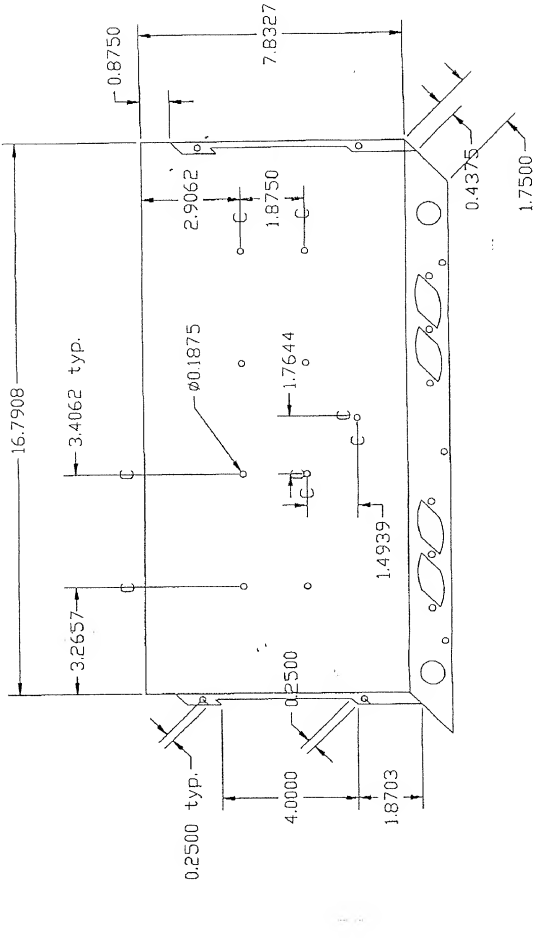
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FIG. 4B

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **METHOD AND APPARATUS FOR A REMOTELY SWITCHABLE POWER SUPPLY** the specification of which is attached hereto.

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Stephen J. LeBlanc, Reg. No. 36,579
Babak S. Sani, Reg. No. 37,495

Send Correspondence to:	Direct Telephone Calls to: (Name, Reg. No., Telephone No.)
Stephen J. LeBlanc **TOWNSEND and TOWNSEND and CREW LLP** **Two Embarcadero Center, 8th Floor** **San Francisco, California 94111-3834**	Name: Stephen J. LeBlanc Reg. No.: 36,579 Telephone: 415-576-0200

Full Name of Inventor 1:	Last Name:	First Name:	Middle Name or Initial:	
	REYNOLDS	**CHARLES**	**H.**	
Residence & Citizenship:	City: **Gilroy**	State/Foreign Country: **California**	Country of Citizenship: **United States**	
Post Office Address:	Post Office Address: **2465 Bridle Path Drive**	City: **Gilroy**	State/Country: **California**	Postal Code: **94020**

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1

Charles H. Reynolds

CHARLES H. REYNOLDS

Date 5-7-99

SF 218132 v1